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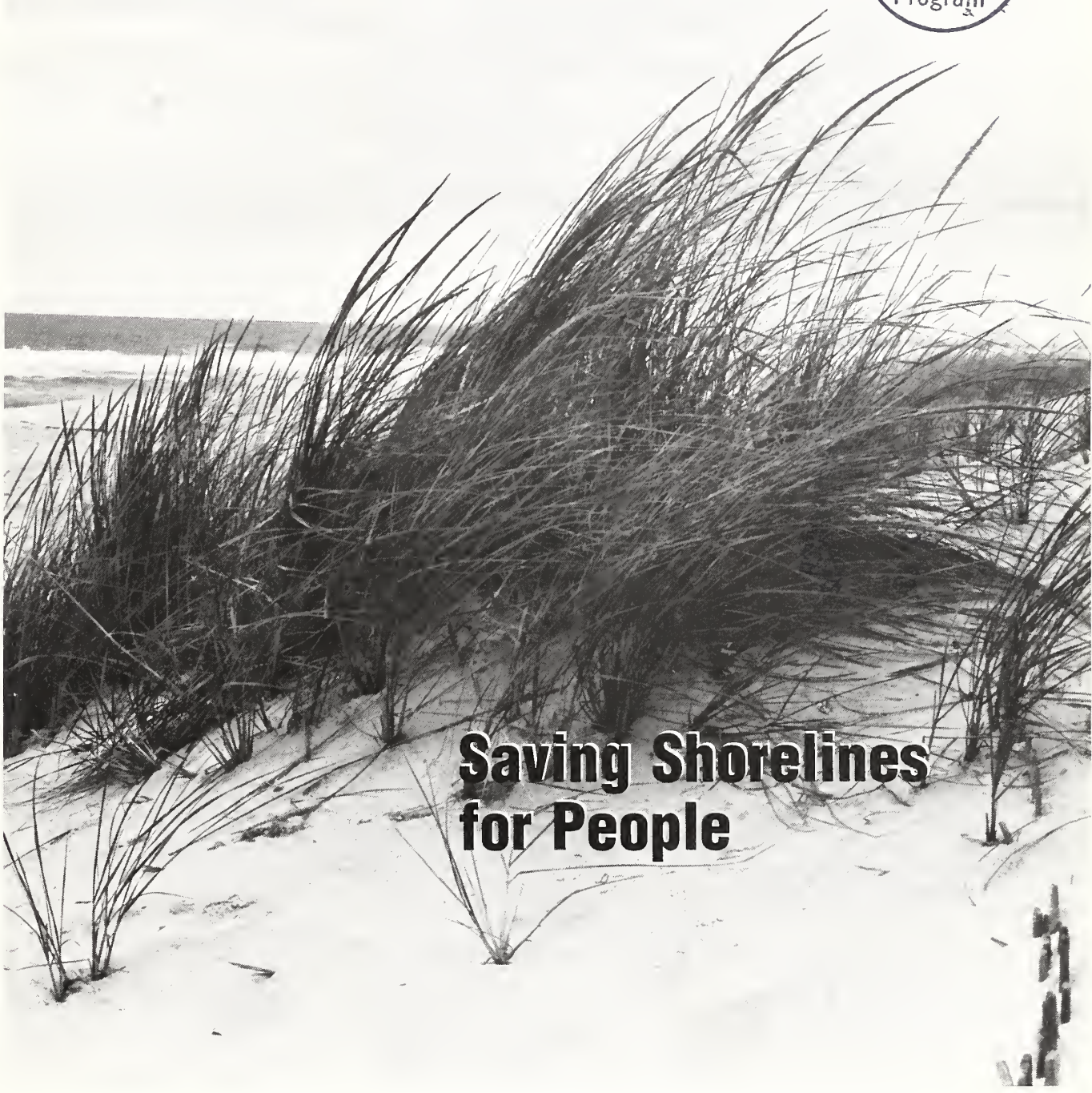
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United States
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Saving Shorelines for People

Cover: Frontal dune stabilized with American beachgrass plantings.

Comments from the SCS Chief:

Shoreline Resource Conservation Benefits Everyone

Shoreline areas have a special appeal to most Americans, and for good reason. They support a vast economy that includes the seafood, recreation, commerce, and travel industries. Almost everyone is in some way touched by America's vast network of inland and coastal waterways—whether they vacation at the beach, dine on seafood, farm or ranch along their shores, or use these waterways for shipping and commerce.

People who live along the shores of our oceans, bays, lakes, and rivers have special resource conservation challenges. These include controlling shoreline erosion that is eating away at farm fields and forests, stopping saltwater intrusion that ruins crop fields, stabilizing dunes to prevent beach erosion, and protecting wetlands that filter sediment and nutrients and provide habitat for many wildlife species.

The condition of our shorelines and coastal and inland waters also depends to some extent on people's activities upstream. You can't look at the water without looking at the watershed. We long ago came to realize that activities that affect the nearby creek will also affect the river or bay that creek feeds.

Soil Conservation Service employees, in partnership with conservation districts, are providing technical help not only to the people who live along America's coastal and inland water bodies, but also to those who live in the watersheds that drain into those water bodies. We are working with farmers, ranchers, suburban homeowners, and turf managers in upstream watersheds to control erosion to prevent sedimentation and nonpoint source pollution; we develop plants and provide planting recommendations for controlling erosion along shorelines and beaches; we help landowners prevent saltwater intrusion; and we help protect—and even restore—wetlands which filter pollutants, provide scenic beauty, and provide food and shelter for wildlife.

No matter where we live, we all have to work together in harmony with nature. Everyone has a part and an interest in saving America's shoreline resources. So, whether you're vacationing at the lake or ocean or dining on lake or sea trout, you can bet that soil and water conservation efforts of many Americans had a hand in making that an enjoyable experience.



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Secretary of Agriculture

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Chief, Soil Conservation Service

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Saving Shorelines

Dune Project Wins Praise In Maryland

THINK ABOUT SAND dunes a moment. They survive in one of the most hostile environments on Earth. They survive in spite of high winds, salt spray, extreme temperatures, drought, wave impact, abrasion, and extended periods of storms.

In Ocean City, Md., a block-long demonstration dune was constructed in 1985 by the Dune Stabilization Committee in an effort to raise public awareness about the defensive value of dunes. This past year, the committee recruited more than 125 volunteers to help plant beach grass on the dune. Because of the efforts of this project, which continued to raise public awareness with genuine "hands-on" experience, the participants were awarded the Committee's "Dune Preservationist of the Year."

The public awareness campaign started back in the early 1950's. The Worcester Soil Conservation District gave programs offering technical advice on dune management: construction line limits, dune dimensions, and protective stabilization.

In 1962, a freak storm—not even a hurricane—hit Ocean City without warning. It totally destroyed the oceanfront. After the debris was removed, reconstruction



The Dune Stabilization Committee in Ocean City, Md., recruited more than 125 volunteers to help plant beach grass on a demonstration dune. They were awarded the "Dune Preservationist of the Year." (Photo by Bruce Nichols.)

tion of a dune line began with assistance from the U.S. Army Corps of Engineers, Soil Conservation Service, and State agencies.

The Dune Stabilization Committee was formed in 1981 under the guidance of the District. It included condominium managers, property owners, and other interested citizens. The committee, made up of volunteers, published a public awareness Dune Packet listing a schedule of what needed to be accomplished to reestablish a protective dune line.

The Governor of Maryland at the time, Harry Hughes, was so impressed by the work of the committee, that he proclaimed the first "Dune Day" in 1983.

The first demonstration dune, fondly referred to as "Baby Dune," was constructed in front of the Ocean City boardwalk in 1985. In subsequent years, fencing and plants were added to keep pace with its natural growth, and it drew

attention from many people across the State. Two years later, it was dedicated by the new Governor of Maryland, William Schaefer. There were many State dignitaries in attendance that day, and support for the dune project grew.

The highly visible Dune Stabilization Committee continues with its agendas: a second dune has been constructed and planted; a highly informative, educational brochure titled "Living with Dunes" has been produced with the help of the National Flood Insurance Program; and the committee has participated in news broadcasts and Public Broadcasting System programs, and has been featured recently in newspaper articles.

Eileen Gough, public affairs specialist, SCS, Annapolis, Md.

Savin' 'Cajun' Coastal

Teaming Up On the Fina LaTerre

“WE'RE TEAMING up along the whole Louisiana coast to help save the wetlands from erosion and saltwater intrusion,” said Rick Simmering, SCS wildlife biologist in Alexandria. “One of our major successes is the Fina LaTerre marsh area.”

Over 90 percent of Louisiana's coast is privately owned. Marshes are managed for waterfowl hunting and muskrat and nutria trapping. Sport and commercial fishing abound. Livestock and gas and oil production provide additional revenues to landowners.

These landowners are as concerned about wetland losses and proper natural resource management as is the Soil Conservation Service.

SCS and the soil and water conservation districts in Louisiana's coastal parishes (counties) are teaming up with landowners and other Federal and State agencies to stem the Gulf “invasion” with interdisciplinary planning and “connected” land use practices and management alterna-

tives. Nearly 1 million acres are earmarked for conservation treatment.

SCS works with these landowners, and with other resource specialists, to develop individual conservation plans that are compatible with plans and objectives of neighboring landowners.

For example, dredging, filling, and installing water-control structures on one property, but not on an adjacent property, may do more harm than good to wetland marshes on both properties.

A typical marsh conservation plan includes a “system” of water-control structures, canal spoilbank repairs, and other structures needed to establish or enhance wetland vegetation. Without water management, restoration of vegetation is severely limited.

Between 1953 and 1985 at the Fina LaTerre marsh, saltwater intrusion and erosion decreased vegetative cover from 99 percent to 66 percent of the marsh—about a 1-percent decrease per year. In 1985, landowners installed water-control structures and began managing the 7,000 acres to reduce erosion and to improve the remaining habitat.

From 1985 to 1988, vegetative cover increased 6 percent—about 2 percent each year. On adjacent, nonmanaged control areas, no increase in vegetative cover occurred.

“Other landowners in other marshes can do the same thing,” said Simmering. “The knowledge is

there, and the technical assistance is available.”

“Wetland conservation is going to help the economy and the environment of Louisiana—and the whole Nation,” Simmering added.

Charles “Bill” Savant, resource conservationist, SCS, Alexandria, La.

‘Cajun’ Pluses and Minuses

Louisiana

- + Produces 25% of U.S. annual commercial fish landings
 - + Produces 40% of U.S. annual fur harvest
 - + Provides winter habitat for 2/3 of Mississippi flyway waterfowl
 - + Produces 50% of U.S. annual crab harvest
 - + Produces 45% of U.S. annual oyster harvest
 - + Has 40% of U.S. coastal wetlands
-
- Loses 40-50 square miles of coastal wetlands annually
 - Wetland losses are 80% of all U.S. coastal wetland losses annually
 - Wetland losses are growing due to excessive saltwater intrusion and extreme water level fluctuation
 - Gulf Coast is one of the most rapidly eroding areas in the world
 - Erosion losses exceed sedimentation gains from river delta deposits

Country

The Answer Is...PBSE

LOUISIANA HAS thousands of miles of shoreline...and the same amount of potential shoreline erosion.

Ask a thousand Louisianans living on the coast what shoreline protection means to them and how to do it, and you may get a thousand different answers.

But if you ask the Soil Conservation Service and the southern Louisiana soil and water conservation districts, you'll get one answer—"PBSE," Plants Buffer Shoreline Erosion. The LaBranche wetlands are proof-positive.

"Cordgrass plantings help protect our shores from erosion," said Jack Cutshall, SCS range conservationist for Louisiana. "Hurricanes and tidal action can be very destructive to shorelines. And planted shorelines provide a

kind of a buffer against erosion."

Louisiana's coastal areas are among the most important and most valued along the entire Gulf of Mexico. Their natural resource importance may far exceed the value of the condominiums and other oceanfront properties.

"Plants we introduce need to withstand saltwater intrusion and extremes in water level fluctuation," Cutshall explained.

Since 1982, shoreline plantings have been made in 9 of 12 coastal parishes (counties) along the Gulf.

"Using plants as natural tools to combat shoreline erosion can be trying," said Cutshall. "Not all plantings succeed. But we learn from each planting."

In 1983, the LaBranche wetlands were sprig-planted with smooth cordgrass. LaBranche is in a critical transition zone between Lake Pontchartrain and vast areas of freshwater marsh, just west of New Orleans, in the Crescent Soil and Water Conservation District (SWCD). Also in 1983, SCS and the Gulf Coast SWCD planted 13 miles

of shoreline on Calcasieu Lake in southwestern Louisiana.

SCS chose the LaBranche site because it lacked native stands of smooth cordgrass, and it was an ideal place in which to evaluate plantings.

Today, large areas of the LaBranche are protected from erosion because smooth cordgrass has spread into them, a tribute to the plant's versatile and aggressive nature.

"We learned a lot from planting the LaBranche," said Cutshall.

As a result, SCS joined the Louisiana Department of Natural Resources-Geological Survey, the Louisiana Soil and Water Conservation Committee, four local soil and water conservation districts, and several landowners to trial-vegetate a much larger area.

Six shoreline sites were selected and planted with 17 miles of smooth cordgrass and 3,000 feet of giant cutgrass on a wide range of wetland sites.

"Results so far are very positive in many areas," Cutshall advised.

"Shoreline protection is only one aspect of our total conservation effort in Louisiana," says Horace Austin, SCS State conservationist. "At the Golden Meadow Plant Materials Center (PMC), located 50 miles south of New Orleans, we will have the opportunity to identify and evaluate plants that have the potential to solve many coastal management problems."

And the PMC may find additional plants that can help buffer the shorelines against erosion.

Herbert Bourque, public affairs specialist, SCS, Alexandria, La.



Miles and miles of smooth cordgrass plantings are reducing shoreline erosion and keeping Louisiana coastal marshes intact. (SCS photo.)

"As we work with people, we try to help not only with technical assistance, but with the natural conservation angle as well."

Shoreline Programs Active in Virginia

IF 5,000 MILES OF SHORELINE could be stretched out in a straight line, it would reach from Washington, D.C., to Buenos Aires. But when you wind that many miles of shoreline alongside bodies of water, you have the extent of the shoreline in the Commonwealth of Virginia. That is 5,000 miles with the potential for shoreline erosion.

The Virginia Department of Conservation and Recreation's Shoreline Programs Bureau has two technology transfer programs plus an educational effort to assist property owners in controlling erosion anywhere along—and upstream from—that 5,000-mile border.

In the first program, the Shoreline Erosion Advisory Service (SEAS) assists people or corporations having property suffering erosion by tidal waters—and losing taxable assets. The property is usually privately owned. But some is located within State parks and on Federal installations, such as military bases. The SEAS free assistance is not limited to oceanfront properties; it is also available to anyone needing erosion control on upstate tidal rivers and creeks.

In the second program, the Public Beach Board (PBB) works with local governments to provide technical and financial assistance to develop or enhance the public beaches, both salt and fresh water. At present, 24 miles of shoreline qualify as public beaches.

PBB assistance, which requires a 50/50 matching State grant, helps with planning, siting, and access of beaches; beach nourishment; and structural improvements, such as breakwaters or jetties.

Both Shoreline Programs Bureau programs involve an initial site visit to investigate the eroding shorelines. Since 1980, over 3,200 individual site investigations have been conducted. The Bureau gives the owner or manager of the property specific recommendations for controlling any erosion or potential erosion.

The Bureau staff works closely with property owners, providing plan review and onsite construction inspection.

"We feel the followup work is the 'meat and potatoes' of our job," said Jack Frye, Shoreline Programs Bureau manager. "We can meet with property owners at the same time they're meeting with contractors or come out during construction to make sure that what was ordered is being done correctly."

In its educational efforts, the Bureau provides both technical information and conservation educational materials to property owners and the general public.

"Both kinds of information—the technology transfer when there is an erosion problem and just plain, practical information about conservation of resources—go

hand in hand," Frye said. "We have a lot of people who buy property on the shore, or on the banks of a tidal river. They look at the place and praise the natural beauty of it. Then within 2 years, they have eliminated the beautiful, natural, protective marsh grasses, put in sidewalks and big lawns, and are wondering why the land is eroding away. They brought the city with them!"

"But I feel this may be changing some," Frye continued. "As we work with people, we try to help not only with technical assistance, but with the natural conservation angle as well."

Part of the educational effort is also interpreting research being conducted by the Virginia Institute of Marine Science and the Soil Conservation Service.

"This past year was the first time a year's worth of continuous wave data was collected in the lower Chesapeake Bay—just offshore near Hampton," Frye added. "The results of this study were enlightening, especially to those responsible for building shoreline erosion control structures."

"Now our job is to take the information contained in this type of research, which usually appears in scientific journals directed toward a small segment of the population, and redirect it to the general public—the taxpayer who provides the money for the research. We see this as an important function of our overall shoreline erosion program."

Kathleen Diehl, contributing editor, *Soil and Water Conservation News*, SCS, Washington, D.C.

The result of this competition...will draw definite conclusions about the effectiveness of BMP's as they relate to water quality.

Watershed Study Affects Lake Erie

THERE IS A SORT of "race" going on upriver from Ohio's Lake Erie: contestant #1 is the Bayou Ditch Watershed where best management practices (BMP's) have been introduced. Contestant #2 is La Carpe Creek Watershed where traditional farming methods are being continued.

The result of this competition may have far-reaching implications for farmers in all watersheds that drain into Lake Erie—and to farmers nationwide. Why? The results will draw definite conclusions about the effectiveness of BMP's as they relate to water quality.

Since the water quality of Lake Erie impacts the economic and environmental resources of both the United States and Canada, the International Joint Commission (IJC), a political body comprised of three members from each country who handle matters of mutual interest along the border, signed a supplemental agreement in 1983 to the Great Lakes Water Quality Agreement of 1978. It settled on phosphorus-loading limits for both countries, in an effort to reduce the total phosphorus load by 2,000 metric tons; the U.S. share of the reduction was set at 1,700 metric

tons because of its larger drainage area.

The State of Ohio has 12,000 square miles that drain into Lake Erie, 85 percent of which is conventionally tilled. The State was asked by the IJC to reduce its phosphorus load by 1,400 metric tons—900 metric tons from agricultural nonpoint sources alone. The role of the Soil Conservation Service and the soil and water conservation districts in Ohio is to assist the IJC in implementing a reduction strategy for Lake Erie.

The Ottawa County Soil and Water Conservation District (SWCD) is conducting a 5-year watershed study. It is comparing two contiguous watersheds that have similar topography, soils, and weather conditions. Each contains approximately 1,500 acres. The water courses in both flow in a west-to-east direction and join one-half mile before entering the Portage River at Oak Harbor.

In the Bayou Ditch Watershed, BMP's such as conservation tillage, cover crops, wheat and oats in rotation, and seeded berms have been implemented. Information and education programs have also focused on the benefits of the BMP's both to the producers and to Lake Erie.



La Carpe Creek Watershed is the control, and producers have been asked to farm using traditional tillage methods.

"We have had good cooperation from the farmers in both watersheds," said Dennis DeWeese, SCS district conservationist in Ottawa County. "Many of the farmers have land in both watersheds but are cooperating within the parameters of the project."

Monitoring sites have been set up in each watershed to sample for suspended sediment, nutrients, and pesticides. Several rain gauges have been stationed to follow rainfall events. Farm records of fertilizers and pesticides applied are also being assessed.

"We are hoping that the information will tell us if changes in pesticide levels result from an increased use of conservation tillage," said Mike Buhrow, district program administrator for the Ottawa SWCD.

"Looking at the trends will take time and requires a long-term commitment," said Robert Burris, Ohio SCS Water Resources Planning Staff leader. "What we are hoping is that the results of this project will show the benefit of BMP's in reducing nonpoint source pollution into Lake Erie. When this occurs we will have a powerful tool to use in working with farmers in the entire Lake Erie watershed."

Michelle Lohstroh, public affairs specialist, SCS, Columbus, Ohio

A sod berm borders a stream crossing the Ralph Dehn farm in the Bayou Ditch Watershed where best management practices (BMP's) have been introduced.

If this program is successful, an attempt will be made to apply the positive values on an island-wide basis.

Puerto Rican Clean Lakes Program

FROM THE AIR THE ISLAND of Puerto Rico still sparkles like a green pearl floating in an azure sea. Its pristine beaches are enchanting and paradisiacal.

But this jewel in the Caribbean is in danger of being tarnished.

The Puerto Rican Environmental Quality Board (EQB) is hard at work to improve water quality in the island's 7,000 acres of lakes and other surface waters. They have inspected the lakes and other waters and classified them by their degree of contamination, from moderate to severe.

Their research pointed out three major pollution sources: nonpoint source pollution, from diverse sources such as agriculture, lawns, streets, and other areas; point source pollution, both from industry and from inadequately treated municipal water; and solid waste disposal, increasing significantly because of economic growth and development. Construction debris and inefficient sewage systems in urban areas compound the problem.

EQB is identifying best management practices (BMP's) to combat the contamination. They are working with local units of the Puerto Rican Government and with Federal agencies, including the Soil Conservation Service and the



Environmental Protection Agency (EPA), to implement these practices. SCS has assigned an employee to the EPA office in New York City, which covers Puerto Rico.

EQB singled out nonpoint source pollution as the most critical problem.

EQB has been studying the pollution control measures now being practiced in five watersheds: the Rio Grande de Loiza, Rio La Plata, Rio de Manati, Rio de Bayamon, and Rio Cibuco. The Board decided to focus on two lakes that supply water to the San Juan area.

Under the Clean Lakes Program, administered by EPA, nonpoint source pollution will be controlled in the Lake La Plata basin through an animal-waste processing plant. The plant has a double purpose: to turn poultry fecal waste into fertilizer and to encourage farmers to make wise use of chemical fertilizers.

Under Section 208 of the Clean Water Act, EPA is funding a prototype regulatory program on animal waste in the Lake Loiza watershed. If this program is successful, an attempt will be made to apply the positive values on an island-wide basis.

This view of the La Plata watershed is typical of many watersheds on Puerto Rico. The island is actually more mountainous than is indicated by the many beach scenes displayed on most tourism promotion.

According to Theresa Faber, EPA Clean Lakes coordinator, "The results of these studies were cause enough to make these lakes two main targets for cleanup. The people in Puerto Rico have been very cooperative and have supported the Clean Lakes Program 100 percent."

In 1989, Puerto Rico submitted its final Nonpoint Source Management Program (NSMP) to EPA. To accomplish program goals, EQB is seeking substantial funding from EPA and other sources, and technical assistance from the Soil Conservation Service.

Tony Dore, SCS liaison to EPA, said, "The three main objectives of the NSMP are: identifying the BMP's which will be used to reduce pollutant loadings; identifying the programs to achieve the implementation of the BMP's; and developing a 4-year implementation schedule that will significantly resolve the problems and improve water quality."

Currently, EQB continues to sample and evaluate the water quality of the lakes and other surface waters slated for action under NSMP. They also continue to study and monitor source pollution and solid waste disposal.

The EQB is moving quickly with water quality projects that may help put the shine back into this Caribbean jewel.

Lillyvette M. Montalvo, public affairs specialist intern, SCS, Washington, D.C.

Conservation On Your Own

Soil Conservation Service offices now have a new tool designed to help midwestern farmers and ranchers implement their conservation plans and stay eligible for USDA benefits.

"Conservation On Your Own" is a cooperative project between SCS and the National Association of Conservation Districts (NACD), based on the idea that farmers prefer to do as much of their own conservation work as possible. A 60-minute "how-to" videotape is the centerpiece of the project.

Eight segments in the tape show farmers how to apply each practice step-by-step with their farm equipment. The tape covers how to:

- Measure and manage crop residues;
- Lay out wind strips;
- Control small gullies with grass;
- Plant and maintain a field windbreak;
- Lay out contour lines and use field borders;
- Lay out contour buffer strips;
- Keep terraces working; and
- Consider other points in contour stripcropping.

A four-color brochure describing the practices in the tape has been produced. In States where SCS is heavily committed to the project, multiple copies of the tape are available in each county. Conservation districts are making

Help Yourself!

With Free
Conservation
Videotapes



Conservation ON YOUR OWN

Contact the Conservation District office and find out where you can borrow a "How to" video.

tapes available at a number of loan locations within the district.

A promotional package has been developed to help conservation districts and SCS field offices get maximum use of the videotape. It includes a checklist for conservation districts, a sample newsletter article, a sample letter to farm organizations, a sample news release, radio public service announcement scripts, instructions for distribution, video loan guidelines, a record sheet, and a feedback card. The promotional package allows each county to localize the material to best fit the area.

In some States, SCS offices are developing factsheets or field handbooks that farmers can take to the field for further guidance.

States with the heaviest distribution of the videotapes are Iowa, Missouri, Georgia, Minnesota, North Dakota, and Kansas. Field

offices in these States receive from 10 to 30 copies per county for loan. Enough videotapes were made so that each SCS field office could receive a notification copy, except in the Western States.

The West National Technical Center is coordinating production of a regional version of the videotape called "Conservation On Your Own in the West." It includes the first four topics from the Midwest plus how to install field stripcropping and grass buffers.

The cooperative project originated in Iowa and was coordinated in the Midwest. It involved numerous SCS and district employees in several States and national headquarters as well as NACD officials.

"This idea seemed to be one that could work to both ease our workload and give farmers a better understanding and 'ownership' of soil conservation practices," said Mike Nethery, SCS State conservationist in Iowa.

Colleen Weinzettl, public affairs specialist, SCS, Des Moines, Iowa

Conservation Awards Given

The American Farmland Trust (AFT) recently recognized individuals and organizations that have made outstanding contributions to protect the Nation's agricultural resources with the

1989 AFT Agricultural Conservation Awards. The awards were given out in three categories:

Public Policy and Program Development

- The Commonwealth of Pennsylvania for its new \$100 million Agricultural Conservation Easement Program—the Nation's most far-reaching farmland preservation program;
- The Pennsylvania Farmers' Association for its efforts in the development of the program; and
- Pennsylvania State Senator Noah Wenger and State Representative Samuel Morris for developing the legislation and gathering bipartisan support for it.

Public Education

- Max Schnepf, of Ankeny, Iowa, for work with the Soil and Water Conservation Society and dedication to communicating the needs and methods of conservation;
- "Farmlands on the Edge," a documentary produced by the New Jersey Network, for addressing the importance of farmland protection in a compelling and well-documented manner; and
- The Chesapeake Bay Foundation's Clagett Farm Education Center, Upper Marlboro, Md., for educating farmers and the general public about the interrelationship between agriculture and surrounding natural resources.

Land Protection

- Resourceful Farming Demonstration Project of the Iowa Natural Heritage Foundation for helping farmers to evaluate environmen-

tally sound and economically profitable farming systems.

- Montana Land Reliance for its work to slow the loss of the State's agricultural land by providing private, voluntary conservation options for landowners.

- Otto Teller, Sonoma County, Calif., for his leadership in private conservation efforts both on his own farm and through his active participation with conservation organizations.

The AFT is a national, nonprofit organization dedicated solely to the protection of farmland. AFT encourages involvement in farmland conservation to help ensure the long-term viability of America's food and fiber production system.

"We think it's very important to recognize the dedication and enthusiasm shown by our award winners," AFT President Ralph Grossi said. "We hope their efforts will serve as both a model and as encouragement for others who care about the future of our agricultural resources."

The 1989 Agricultural Conservation Awards were supported by a grant from Kraft General Foods, Inc.

Campaign in Third Phase

"On the baking plains of Africa, they count on us. On the freezing midlands of central Asia, they depend on us. And from Maine to Texas to California, we all count on the care and skill of America's

farmers and ranchers to conserve our most precious resources." These are the first lines of the latest Soil Conservation Service public service announcement.

"They Count On Us" is the third phase of the "We Owe It To Our Children" campaign that was recently released to SCS State offices. This phase focuses on the global demand placed on farmers and ranchers daily. This approach expands upon the previous phases ("A National Treasure" and "The Monuments") that highlighted natural resources and national monuments.

"We Owe It To Our Children" is a national public service campaign on soil and water conservation. Its purpose is to highlight simple ways everyone can conserve soil and water. The common denominator of each phase's posters and television and radio announcements is the 1-800-The-Soil number. Callers are mailed an information packet on how to conserve soil and water. They also receive information on the conservation provisions of the 1985 Farm Bill, volunteering for the Earth Team, and the Take Pride in America Program.

The national public service campaign was produced by SCS in cooperation with local soil and water conservation districts and the Soil and Water Conservation Society.

Kim M. Berry-Brown, public affairs specialist intern, *Soil and Water Conservation News*, Washington, D.C.

The Environmental Communication and Public Relations Handbook

by E. Bruce Harrison Company

Designed as a "handbook of advice" for relating positively to the news media, congressional and

State legislatures, local communities, employees, and other important audiences, *The Environmental Communication and Public Relations Handbook* is intended for professional communicators as well as nonprofessionals who may "quickly have to become spokespersons on environmental issues."

This text approaches environmental communication by first fitting it into an overall public relations process involving research, communication, and evaluation and then breaking it into relationships with specific audiences. Making allies within

these audiences is the underlying theme of the text. Readers learn how to communicate about safety issues as well as emergencies.

Case studies, crisis and risk communication guidelines, communication advice from regulators, factsheets, and additional resources are available in an appendix at the end of the text.

Soft-cover copies of the book are available for \$47 (plus a \$3 shipping charge) from Government Institutes, Inc., 966 Hungerford Drive #24, Rockville, MD 20850-1714.

Climate, Water & Agriculture in the Tropics

by I.J. Jackson

Rainfall and high rates of evaporation of water exert a great influence on agriculture in the tropics. *Climate, Water & Agriculture in the Tropics* examines

attributes of tropical rainfall and water evaporation, together with their implications, especially as they relate to "agriculture, land use, and aspects such as soil erosion and irrigation."

The text explores the attributes of tropical rainfall; the significance of water to plants; and the implications of rainfall regarding plant growth, agriculture, irrigation, and soil and water conservation. The final chapter examines how man

"modifies the effects of the characteristics (of rainfall) together with some of the results of this modification."

The text is intended for hydrologists, meteorologists, agriculturalists, and engineers involved with the development of water resources in the tropics.

Soft-cover copies of the text are available at \$39.95 from John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158.

Environmental Software Directory

by Donley Technology

This directory is an up-to-date compilation of both government and commercial data bases, online

systems, and software packages for the environmental field. It examines over 400 systems, including such topics as ground water modeling, hazardous substance management, chemical information, risk assessment, air pollution modeling, legislative updates, and regulatory compliance. The directory gives a brief summary of each software system, providing information about

hardware and software requirements, cost, technical support, and a point of contact.

The Environmental Software Directory is available from Donley Technology, Box 335, Department E2, Garrisonville, VA 22463, for \$59.

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Conservation Calendar

January	7-11	American Farm Bureau Federation 71st Annual Meeting, Orlando, Fla.
	10-13	National Association of Wheat Growers 40th Annual Convention, San Antonio, Tex.
	12	Purdue University's Farm Forum, W. Lafayette, Ind.
	14-16	U.S. Wheat Associates Convention, San Antonio, Tex.
	19-Feb.4	Southwestern Exposition & Livestock Show, Fort Worth, Tex.
	21-23	Idaho Feed & Grain Association Annual Convention, Boise, Idaho
	21-24	National Grocers Association Convention, San Antonio, Tex.
	21-26	National Council of Farmer Cooperatives Convention, San Diego, Calif.
	26	Southern Agribusiness Forum, Memphis, Tenn.
	29-31	National Cattlemen's Association Convention, Nashville, Tenn.
February	2-6	American Sugarbeet Growers Association Convention, Washington, D.C.
	2-6	National Food Processors Association Convention, San Francisco, Calif.
	4-8	National Association of Conservation Districts Convention, San Diego, Calif.
	7	Southern Association of Agricultural Sciences, Little Rock, Ark.
	11-13	United Fresh Fruit and Vegetable Association Convention, San Antonio, Tex.
	15-16	National Frozen Food Association Convention, Washington, D.C.
	15-20	American Association for the Advancement of Science Annual Meeting, New Orleans, La.
	20	American Simmental Association Convention, Alexandria, Va.
	21-23	National Corn Growers Association Annual Meeting, Phoenix, Ariz.
	25-27	National Governors' Association Convention, Washington, D.C.
March	4-7	National American Wholesale Grocers Association Convention, New Orleans, La.
	6	Symposium of the Institute of Alternative Agriculture, Washington, D.C.
	15	Symposium of Sustainable Agriculture, Sacramento, Calif.
	20-24	Fire and Environment International Symposium, University of Tennessee, Knoxville, Tenn.
	25-29	National Grain & Feed Association Convention, Williamsburg, Va.